



The Reverchon Naturalist

Recognizing the work of French botanist Julien Reverchon, who began collecting throughout the North-Central Texas area in 1876, and all the botanists/naturalists who have followed ...

Hedeoma Reverchonii

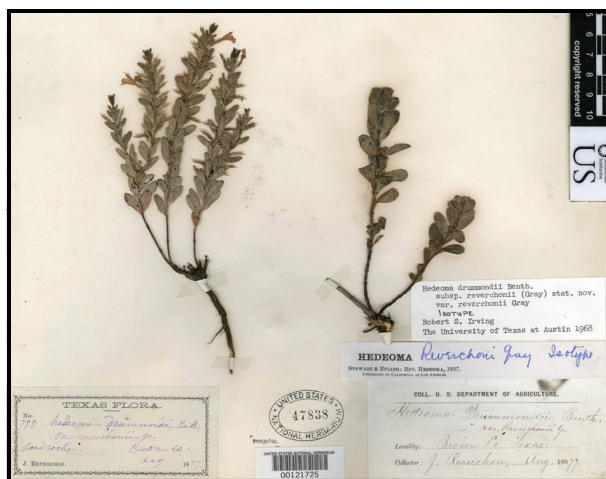
Story by Dr. Raul Gutierrez, Ph.D.
Dallas, Texas

Reverchon's false pennyroyal (*Hedeoma reverchonii*), also known as rock hedeoma or Reverchon's hedeoma, is a native plant of the Mint family (*Lamiaceae*) that you might see in our zone. The flowers are not very conspicuous from a distance, but once up close you'll notice the bluish to purplish color of the petals and the slightly fuzzy texture of the leaves and stems. One of the characters that help to distinguish this plant from other similar species is the presence of a strong scent of citrus or lemon when the leaves are rubbed or crushed. Like all members of the Mint family, the stems are square, and in this species the stems

the stout, woody base of the plant and can grow to 18 inches tall. Reverchon's false pennyroyal can usually be found growing on limestone outcrops and bluffs, and along rocky shoulders and road cuts.

Originally collected in Brown County, Reverchon's false pennyroyal was first described by Asa Gray, a botanist at Harvard University from 1842-1873. Gray named the plant in honor of Julien Reverchon, an early naturalist in north-central Texas and the namesake of this newsletter. A photograph of a herbarium specimen at the Smithsonian Museum in Washington, D. C., which was probably examined by Gray when he described this species for the very first time. Several other herbarium specimens of this species that were collected by Julien Reverchon are housed at the New York Botanical Garden, Harvard University, and the Field Museum in Chicago. Our very own Botanical Research Institute of Texas located in Fort Worth houses another of Reverchon's original collections from Dallas County.

The other three species in our area include slender hedeoma or slender false pennyroyal (*Hedeoma acinoides*), Drummond's hedeoma or Drummond's false pennyroyal (*Hedeoma drummondii*), and rough hedeoma or rough false pennyroyal (*Hedeoma hispida*). Slender false pennyroyal and rough false pennyroyal are both annuals and lack the woody bases seen in Reverchon's and Drummond's false pennyroyals. Rough false pennyroyal has linear leaves that are thinner than the ovate leaves found in slender false pennyroyal. Leaves of Drummond's false pennyroyal have the scent of peppermint, and the stems tend to be shorter than those of Reverchon's false pennyroyal.



This photograph shows the *Hedeoma reverchonii* on display at the University of Texas in Austin in 1968. (Photo courtesy of Dr. Raul Gutierrez, Ph.D.)

(Continued on page 5)



By Ricky Linex
NRCS Wildlife Biologist
Weatherford, Texas

Learn from the Past to See the Future

We have made it through the worst of this long, hot summer. Some areas in north-central Texas have received average rains and others are suffering with below normal rainfall. The Rolling Plains and Western Cross Timbers regions have been under stress for some time while the Eastern Cross Timbers and Post Oak Savannah regions are still green.

Wildfires have cropped up again but not to the intensity we experienced in 2011. Due to above average rainfall during late winter and early spring these fire scared areas from 2011 were looking great, but as soon as the cool season forbs and early wildflowers faded, the slow recovery of these sites became clearly evident. Deferment from grazing is easier to convince landowners this year because of the high price of buying back into the cattle business. These burned areas need additional time to recover. In many cases the areas have to recover totally from new seedlings which have to establish from seeds. After the spring flush of forbs and flowers there was scant moisture remaining in the soil for seeds to attempt germination. Some seedlings did persist and began growth only to face a hot and dry summer.

The evening news often shows video of massive dust storms that have rolled through the Phoenix area. These storms always remind me of the black and white photos from the dust bowl days. Check out the calendar of events in this July/August issue for two programs in Canyon and Amarillo regarding the dust bowl days. Richard Egan, author of *The Worst Hard Time*, will attend both events and discuss his research and conversations with those who lived through the Dust Bowl of the 1930s. It is a long way to the Panhandle, but a worthy trip to understand what caused the problem and to celebrate the tenacity of those early settlers who stayed until the drought broke in the late '30s.

The Natural Resources Conservation Service (NRCS) is a direct descendant of efforts to help recover the land damaged by the droughts and blowing dust from this era. The Soil Erosion Service was a new agency within the Department of Agriculture that began in 1933, and lasted until 1935 when the name was changed to the Soil Conservation Service (SCS). The new name was better and lasted until it was changed in 1994 to NRCS. The late Ralph Schwartz of Abilene, Texas, retired Soil Scientist with SCS, worked from 1935-1965, and was assigned to collect information during the first "Dust Bowl Survey" completed between 1935 and 1936. The survey covered eastern Colorado and New Mexico, western Kansas and the panhandles of Oklahoma and Texas. Ralph noted aside from frequently getting stuck driving across the drifting sand the greatest challenge they faced was constantly having to stop and fix flats on their Model A vehicles. "The tumbleweeds would blow in the wind, get caught on fences along the roadsides, and the force of the wind would cause the fence steeples to pop out, landing on the road and causing the flats," Schwartz said.

As stewards of the land, we have to learn from the mistakes of those early settlers who were trying to make a living and may not have known of the dangers of turning the prairie sod, grass side down.

Blue Wild Indigo

*Story by Kalissa Garland, NRCS Soil Conservationist
McKinney, Texas*

While driving through Collin County this spring, the showy flowers of many Blue Wild Indigo (*Baptista australis*) plants caught my eye. Our plentiful rains this year have helped the plant grow in above-normal numbers.

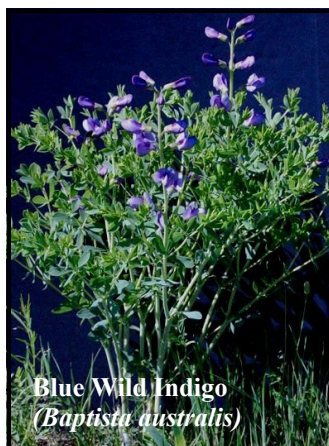
Blue wild indigo goes by many names, including wild indigo, false indigo, baptisia, Plains baptisia, rattlepod, and rattlebush. It is a native, perennial legume with showy blue flowers. It has deep roots, alternate trifoliate leaves, and reproduces by seeds or rhizomes. Flowers are found in a cluster growing at the end of erect branches between April and August. After flowering, seeds growing in pods that are 1 to 3 inches long can be found. Once the plant is mature in the fall, it breaks off from its root system. Blue Wild Indigo may grow up to 5 feet tall and 3 feet wide, but is more often 3 feet tall and 2 feet wide.

The plant was once used by Cherokees for dyeing clothes and making tea. Other Native Americans used it for medicinal purposes, eyewash, and baby rattles. Today, many people use it for ornamental purposes in their yards because of its showy blooms and low maintenance requirements—it does not require fertilizer, extra watering, or pruning. It is a good plant to use if you are considering xeriscaping. Blue Wild Indigo is also valuable as a conservation plant, for it creates good ground cover, has a deep root system that helps prevent erosion, and, as a legume, it returns nitrogen to the soil.

Blue wild indigo attracts pollinators, but is rated poor for wildlife and livestock. Formerly, it was thought that the plant was lethal to cattle and horses, but more recent studies show that the plant has less serious, non-lethal effects if grazed. It should also be noted that grazing of the plant is seldom an issue because it contains alkaloids that are bitter tasting.

Its range stretches from Texas to Nebraska and eastward. It does not tolerate shade and grows best in sandy or well-drained loamy soils. The plant is highly adaptable and can be grown in many areas outside its native region. Its deep root system allows it to withstand droughts, and it can also withstand extremely cold temperatures for a short time without any damage.

Weevils are a common pest of blue wild indigo, for they invade the seedpod and greatly reduce the viability of seed. If planting blue wild indigo, seeds should be treated to kill insects, and the hard seed coat should be scarified. Germination occurs when the soil temperature is close to 50 degrees Fahrenheit. (Photos courtesy of Kalissa Garland, USDA-NRCS)



Open seedpods, above, and seedpods with the plant on the landscape, right, shows bright colors in the spring.



Bush Sunflower (*Simsia calva*)

Story by Znobla Wootan
Junction, Texas

A new harvest has come in from the farm fields this week. A much anticipated harvest of our relatively new plot of bush sunflower. Last year, the harvest actually occurred during the worst drought in recorded history. This little perennial still made seeds although most were consumed by the starving birds that found salvation on the farm. I don't ever remember seeing so many gold finches before in my life. Due to the drought and an 8,000-acre wildfire, our farm was home to all types of wildlife, including hundreds of gold finches and painted buntings.

Bush sunflower (*Simsia calva*) is named for a British physician and botanist John Sims (1749-1831). Bush sunflower is a low-growing perennial shrub that likes dry challenging soils of north-central Texas, west to New Mexico and south into Mexico. It can be found growing along limestone ridges, in prairies, straight caliche and roadsides. It is often used in re-vegetation mixes to control erosion or in reclamation efforts for lands that were mined. Sunflowers are commonly known to provide very nutritious seed for many birds and mammals. The leaves of the bush sunflower are also of a high protein content that is easily digested by deer & live stock such as sheep and goats. It may be hard to establish in areas heavily populated by deer. Deferred grazing for at least one full growing season should be allowed for range establishment. Bush sunflower will not tolerate overgrazing and good range management techniques are a must.

The plant itself has an upright slightly mounding characteristic. It will grow to 1 ½ to 3 feet tall. Mature leaves at the base of the plant will be about 2 inches, and will have a distinctive arrowhead shape with newer leaves being smaller at the top of the plant. It will have multi-branched stems with a flower at the end of each stem. The flowers are 1 to 1 ½ inches across with yellow petals and a yellow center, and it will bloom from April until October. Although the plant is woody, it is very brittle and is closely related to another popular native, *Wedelia texana*, more commonly known as zexmenia.

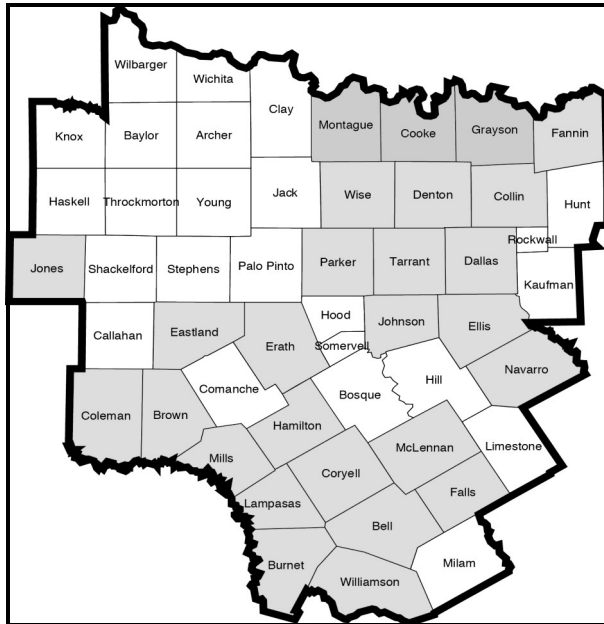
One way to tell the two apart is to look at the leaf bases and on the Bush sunflower the leaf bases will have grown together. Both species have stems and leaves that feel like sand paper. You will want to try this fantastic little native. It will draw in the wildlife just like the larger sunflowers but it is perennial and low growing making it perfect for landscapes and range plantings alike.



Bush sunflower can grow from seed to full bloom, top left, in about 60 days, and on a good year has flowers each spring. Many species of birds love the plant including the Lesser American Goldfinch, top center, as well as the large, healthy roots of this perennial help to keep the bush sunflower extremely drought tolerant. (Photos courtesy of Native American Seed Company)

(Continued from page 1—Hedeoma Reverchonii)

In our zone, Reverchon's false pennyroyal has been documented from several counties, as shown on the map within this story. It most likely occurs naturally in additional counties not shown on the map, so keep your eyes peeled and be sure to report any new county records.



The range for Reverchon's false pennyroyal has been documented in several north-central Texas counties as this map shows.

A Pledge to Broomweed

"I pledge allegiance to common broomweed, and to the cover for which it provides. One canopy over head, continuous, providing usable space for quail."



Dr. Dale Rollins, center, Texas Agrilife Extension wildlife specialist and director of the Rolling Plains Quail Research Ranch in Roby, Texas, holds up a common broomweed plant with members of the National Bobwhite Technical Committee. (Photo Credit: Ricky Linex, USDA-NRCS)

Strange Deer Diets

Story by Ricky Linex, USDA-NRCS

The North Texas Buckskin Brigade meets annually during the third week of July at Stasney's Cook Ranch in Shackelford County. The 11th Battalion met this year, and one of the first activities the cadets get to experience is a round robin of white-tailed deer anatomy. Two white-tailed does had been collected with a scientific permit in order to teach this session. During the rumen analysis everyone was surprised to wash out a Plains Lubber grasshopper, also called a Jumbo grasshopper, from the rumen contents of the second deer. Earlier in the morning veterinarians Dr. Bob Dittmar, DVM in Kerrville and Dr. Bill Eikenhorst, DVM in Brenham, had noticed several pairs of grasshopper legs in the rumen of the first doe.

Deer are herbivores whose diet is largely forbs, browse and some grasses, but they have also been documented to have eaten field mice, eggs and fledglings of song birds. I remember once on video a doe was observed eating eggs from a bobwhite nest. This summer there has been an abundance of grasshoppers, which scatter in front of anyone or anything moving across the land. How did the grasshoppers wind up in the stomachs of these deer? Whether these deer accidentally consumed them is open for debate since deer can be very selective with what leaf or tip of a forb they choose to eat. It seems more likely the deer choose to consume the grasshoppers, perhaps these plentiful insects are used as a dietary supplement when available.



This plains lubber grasshopper, left, was found in the rumen of a white-tailed deer. Rumen contents included, clockwise below, prickly pear tunas, four pair of grasshopper legs, forbs including common broomweed, prickly pear seeds, lower center, and mesquite beans.



Twinleaf Senna

*Story by Wynne Whitworth, NRCS Rangeland Management Specialist
Jacksboro, Texas*

*I*t is amazing how complete is the delusion that beauty is goodness. When Leo Tolstoy penned those words, he could have been referring to the many different plants on Texas rangelands that are lovely to look at, but hold darker intentions. Twinleaf senna is one such plant, adding green splashes to often barren landscapes, and delicate yellow flowers, nearly transparent in the sun. The deception of beauty is surpassed by the toxic nature of this diminutive plant.

Twinleaf senna (*Senna roemariana* (Scheele) Irwin & Barnaby) is a plant native to Texas rangelands and particularly common in shallow limestone soils. The plant is easily identified by its namesake feature; leaves are arranged coming off the stem in a spiral pattern in leaflet pairs. The stems and leaves of the plant are covered in short soft hairs, giving it a gray color. It is a member of the *Fabaceae* family, commonly referred to as the legume family, which means it produces a bean pod to house its seeds. It produces many yellow, orange flowers each with five petals, throughout the spring and summer.

While the plant has a very distinct, nearly paper like yellow, orange flower, this little plant is misleading in its splendor. Twinleaf senna contains an unknown toxin that can affect cattle, sheep, goats, and horses in different ways. Ingestion of the plant material can cause diarrhea, weakness and death in cattle and goats, and they will eventually die of heart failure after prolonged ingestion. Horses and sheep are affected differently, as they will eventually die of liver failure after prolonged exposure to twinleaf senna plants.

As with many troublesome poisonous plants, good grazing management is a key factor in preventing these spiteful little interlopers from gaining a foothold. Ground disturbance and overgrazing create a favorable environment which twinleaf senna and other undesirable plants can easily take advantage of. Supplemental feeding can curb the intake of troublesome plants, and in particular research has shown the supplemental phosphorus is helpful in combating twinleaf senna consumption. A diversified livestock grazing program is also helpful, as sheep are less susceptible to the effects of the plant than cattle or goats.

Though lovely, twinleaf senna is not a desirable rangeland plant, and extreme caution should be used when grazing livestock in areas where it is found. Beauty is fleeting, but death is forever.



Twinleaf Senna
(*Senna roemariana*)

Twinleaf senna, left, has beautiful yellow, orange flowers which belay its deadly nature, along with paired leaflets and gray hairs, right, giving it a distinctive appearance. (Photos courtesy of Wynne Whitworth, USDA-NRCS)



Frogfruit

Story by Troy Reinke, NRCS District Conservationist
Albany, Texas

Remember the old black and white TV show from the 1950s—Father Knows Best? Many in my generation will not, but everyone of the generation before should. The title implicates that as a parent/guardian, father knows what is best for his family. I would like to coin the phrase—Mother Nature Knows Best. Now we can implicate that Mother Nature knows what is best for her family, the soil, water, air, plants and animals. Mother Nature was very meticulous when she developed those family members to live, survive and thrive together.

I have a question for you home landscapers. Are you looking for a perennial forb that provides an abundance of ground cover, is attractive, beneficial, drought tolerant, and water friendly? Well, actually that is several questions, but with one answer being Frogfruit (*Phyla nodiflora*). This plant is sometimes referred to as Texas frogfruit or sawtooth frogfruit, is a native perennial forb that grows prostrate about 3 to 6 inches tall. Its ability to grow low to the ground enables it to provide excellent ground cover. Frogfruit can root from its stems, enabling it to form new plants and establish quickly over large areas. Frogfruit is highly adaptable, and with abundant moisture, tends to grow more upright to a height of almost 8 inches. It is easily propagated from seeds or cuttings. It is adapted to grow in coarse, medium and fine textured soils that are well drained. Frogfruit is very drought tolerant, and will persist as an evergreen during the winter months when protected from freezing. It is also capable of withstanding short periods of standing water or flooding.

Texas frogfruit will also grow in areas receiving full sun, as well as in areas that are in partial shade. Frogfruit is easily identified by its long, stiff leaves with their strongly serrated edges, and unique flowers. The flower cone is purplish in color, surrounded by a ring of white blossoms. Frogfruit will bloom from May thru October. Throughout the season, the center flower continues to elongate, with the ring of white blossoms maintaining its place on the top of the cone. The purple cone and ring of white blossoms are very unique and attractive. Frogfruit is an excellent pollinator plant, providing early nectar for many butterfly species and larval food for the Phaon Crescent Spot, Buckeye and White Peacock butterflies. So remember, frogfruit can provide many benefits throughout the year, and Mother Nature does know best! (Photos courtesy of Troy Reinke, USDA-NRCS)



The Long Hot Summer

*Story by Ricky Linex, NRCS Wildlife Biologist
Weatherford, Texas*

The National Bobwhite Technical Committee, which is comprised of employees representing state and federal agencies, universities and concerned citizens from 25 states within the range of northern bobwhites, met in Abilene on August 6-10, 2012, for their annual meeting.

One day of that meeting was spent touring west Texas ranches with the final stop at the Rolling Plains Quail Research Ranch located 14 miles west of Roby, Texas. I was on the ranch prior to the arrival of those on the tour in order to gather examples to show of *Quail Plants of West Texas Bobwhites*. This day was August 9th and at 12:15 p.m. I had stopped on one of the many roads that crisscross the ranch. As I walked past some brush, a pair of bobwhites flushed behind me with that energetic whirring sound all quail hunters cherish. Noting where the sound came from I had walked within 6 feet of the birds, and they let me pass before flushing. The birds had been resting in the shade of catclaw acacia and netleaf hackberry shown in the photo. The lack of grass growing in this thin brush allowed the birds to take dust baths in the bare soil, and in so doing wallow out small depressions which allowed them to hug the ground. The question that begged to be answered was how much cooler was this shaded covert than out in the noon day sun on mostly bare ground.

I had brought two soil thermometers for a later demonstration showing the temperature difference on bare soil versus dampened soil adjacent to a water trough, which allowed water to be wind-blown over the top of the trough. The soil temperature $\frac{1}{4}$ inch under the soil surface and taken 6 feet from the middle of the loafing cover was measured, and after the temperature stabilized it read 139 degrees F. The soil temperature in the shaded cover stabilized at 85 degrees F, so this was 54 degrees cooler than on the bare soil exposed to the full sun. The ambient air temperature was 99 degrees F. The shaded cover was 14 degrees F cooler than the air temperature taken roughly 48 inches above the soil surface. It has been known for decades that quail need and seek cover from thermal extremes during hot summers and freezing winters. We must remember to preserve these low woody covers to benefit quail and other wildlife species.

By the way, the demonstration at the water trough at 5:00 p.m. revealed the moist soil with green forbs shading the ground was measured at 80 degrees F while the bare ground had cooled to 129 degrees F. Shade in August is a welcomed necessity, for wildlife and those touring the well managed Rolling Plains Quail Research Ranch.



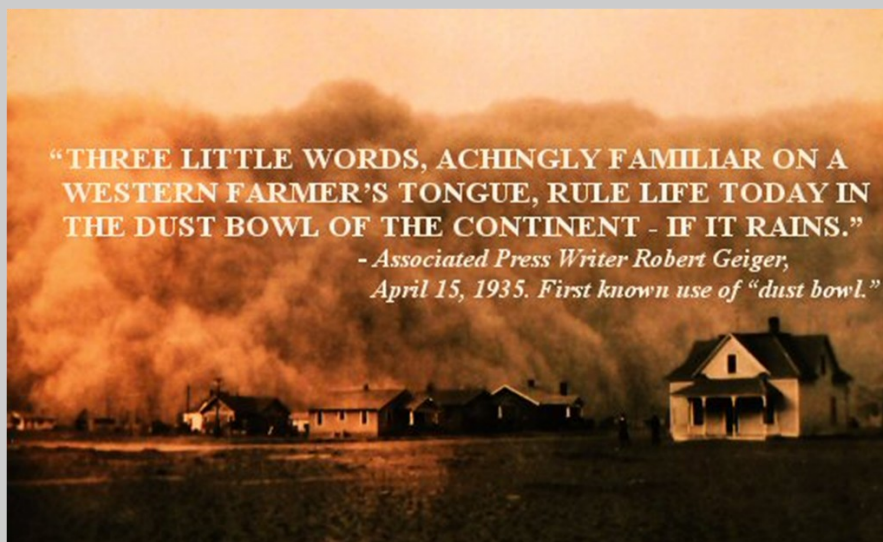
Protective loafing cover which held a pair of bobwhite quail with nearby ground temperature of 139 degrees.



Temperature in this bare soil area within loafing cover was measured at 85 degrees.

UPCOMING CALENDAR OF EVENTS

- September 13, **Wildlife, Drought and Feral Hog Program**, Baird, 9:00 a.m. – 2:00 p.m. RSVP by September 10, Contact Texas AgriLife Extension Office of: Callahan County @ (325) 854-5835; Taylor County @ (325) 672-6048; or Shackelford County @ (325) 762-2232, Ext.7. \$15 Pre-registration Fee, \$20 at the door, Catered lunch included with registration.
- September 21, **North Texas Quail Symposium**, Denton @ Univ. of North Texas Gateway Center Ballroom, 9:00 a.m.– 5:00 p.m., Contact Dr. Kelly Reyna @ (940) 565-4287 or kelly.reyna@unt.edu. \$35 per person and includes a light breakfast and catered lunch.
- September 27-28, **Soil Health Workshop**, Gainesville, 9:00 a.m. – 4:00 p.m. Contact Melissa Bookhout @ 940-768-2740 mbookhout@dixonwater.org RSVP required. \$50 per person, lunch included.
- September 28, **5th Annual Field Day** at the Rolling Plains Quail Research Ranch, 1262 U.S. Highway 180 W. Rotan, TX. 79546 @: (325) 653-4576, or (325) 776-2615 RSVP by September 20.
- October 11, Panhandle-Plains Historical Museum will feature a morning program by Timothy Egan, author of **The Worst Hard Time** at 10:30 am in the Derrick Room as part of its Days of Dust programs. Cost of the program is \$10 and includes museum admission For more information about the Days of Dust programs and events, go to daysofdust.org. For more information contact Andrea Porter @ (806) 651-2235 or email at aporter@pphm.wtamu.edu
- October 11, **Amarillo Reads Public Lecture: Timothy Egan, author of The Worst Hard Time**, Amarillo Civic Center, Heritage Room 8:00 p.m. Followed by book signing, Free and open to the public.
- October 25, **Deer Management Program**, Stephenville 9:00 a.m. - 2:45 p.m. Contact Whit Weems Texas AgriLife w-weems@tamu.edu RSVP by October 20.



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